



Experience from Icelandic pilot

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Matís is an independent research institute which strives toward innovation in the food industry, biotechnology and food security.

Matís provides consultancy and services to companies in fisheries and agriculture as well as governmental agencies.

Director: Sveinn Margeirsson
Staff: Around 100



Swedish pilot

- Chain traceability
- Day-boats
- “Manual” processing
- Cod



Icelandic pilot

- Internal traceability
- Trawlers
- “Automatic” processing
- Redfish



- HB Grandi manages the largest share of quotas in the ocean around Iceland.
- 3 processing plants
- 670 employees



HB Grandi processing plant in Reykjavik.

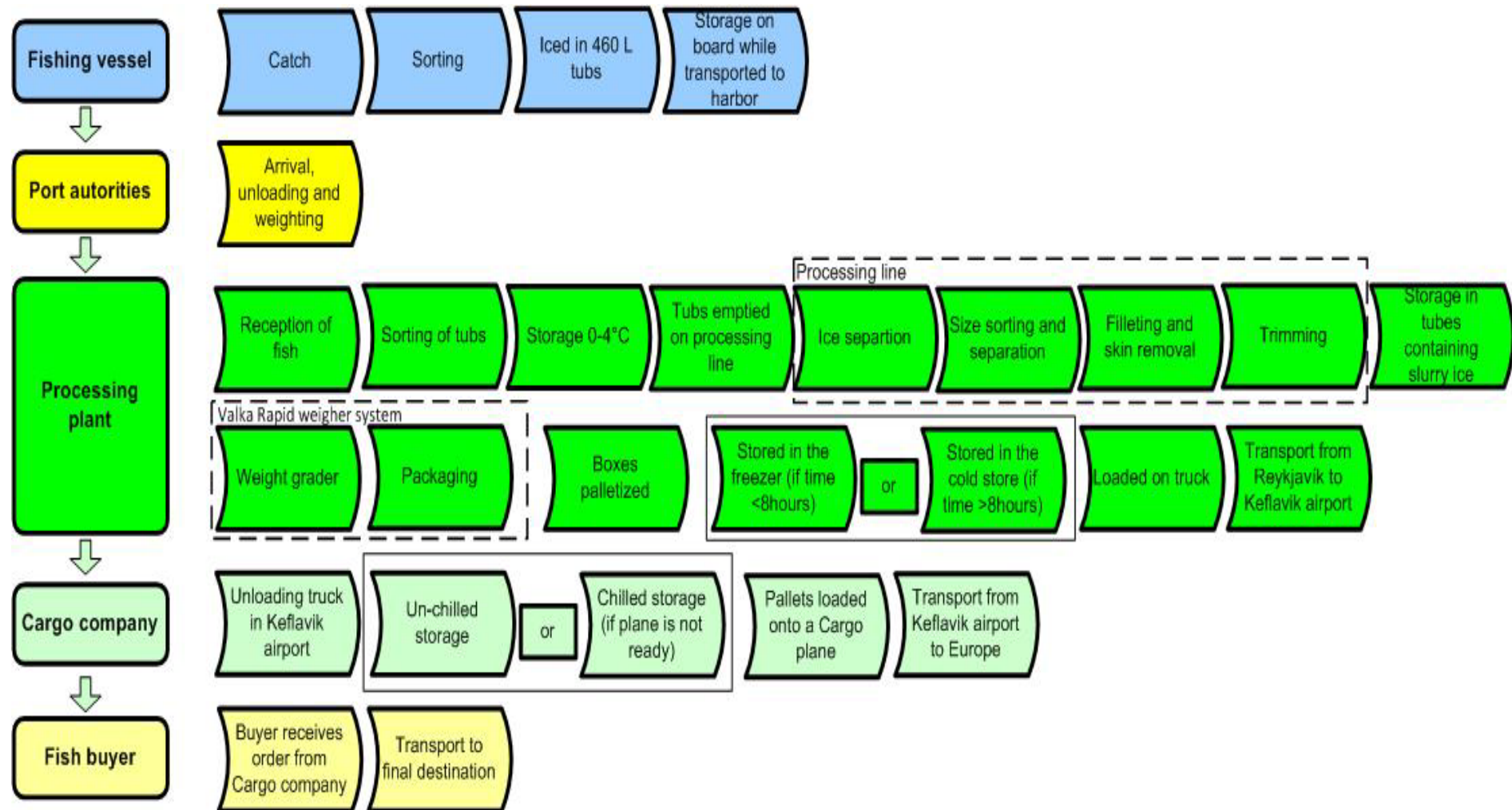
The process

- Deep sea redfish is found west, south and east of the country and most oceanic redfish is caught off the Reykjanes Ridge southwest of Iceland.
- In the wetfish trawlers the catch is iced in tubs and kept chilled.
- The fish is then processed on land in the company's plant where it is size-graded, headed and filleted by machine.
- The fillets are then trimmed and stored in slurry ice.
- Finally, the fillets are either IQF frozen or packed chilled and airlifted the same day to the European market.

*Djúpkarfi, Úthafskarfi • Gallineta nórdica
Sébaste du nord • Tiefsee Rotbarsch
Dybhavsrødfisk • Morskoi okun' • Shinkai Akauo*



The process



Existing traceability problems at HB Grandi and how to improve upon

| Existing problem | How to improve: |
|---|--|
| Coarser granularity than wanted, resulted in complex catch certificates | <ol style="list-style-type: none"> 1. Tubs need their own identifiers 2a. Each new boat starts with empty production tubs 2b. Keep track of mixed production tubs 3. Documentation of mixed fillet EPS boxes |
| A lot of manual counting (5 times) of EPC boxes | <ol style="list-style-type: none"> 1. Serialized numbers on labels on production boxes 2. Read labels when boxes are added or removed from pallets 3. Pallet number should be connected to serial numbers |
| No easy access for traceability information | <ol style="list-style-type: none"> 1. All different internal systems have to share information to traceability system by using the EPCIS standard |

EPC Events answer 4 questions

What, Where, When, and Why

- The EPCIS standard defines a schema for physical visibility data, and interfaces for the capture and query of this data.
- The EPCIS events cover normal logistic and stock control processes by the use of the Event classes.

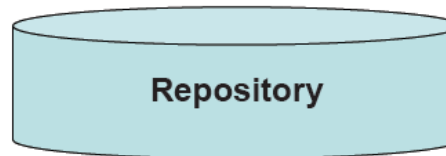
| Event Type | Object Event |
|--------------|----------------|
| Event Fields | Timestamps |
| | Action |
| | EPCList |
| | bizStep |
| | bizLocation |
| | readPoint |
| | Disposition |
| | bizTransaction |

EPCIS Query Interface



| Event Type | Quantity Event |
|--------------|----------------|
| Event Fields | Timestamps |
| | EPCClass |
| | Quantity |
| | bizStep |
| | bizLocation |
| | readPoint |
| | Disposition |
| | bizTransaction |

| Event Type | Aggregation Event |
|--------------|-------------------|
| Event Fields | Timestamps |
| | Action |
| | ParentID |
| | ChildEPCList |
| | bizStep |
| | bizLocation |
| | readPoint |
| | Disposition |
| | bizTransaction |

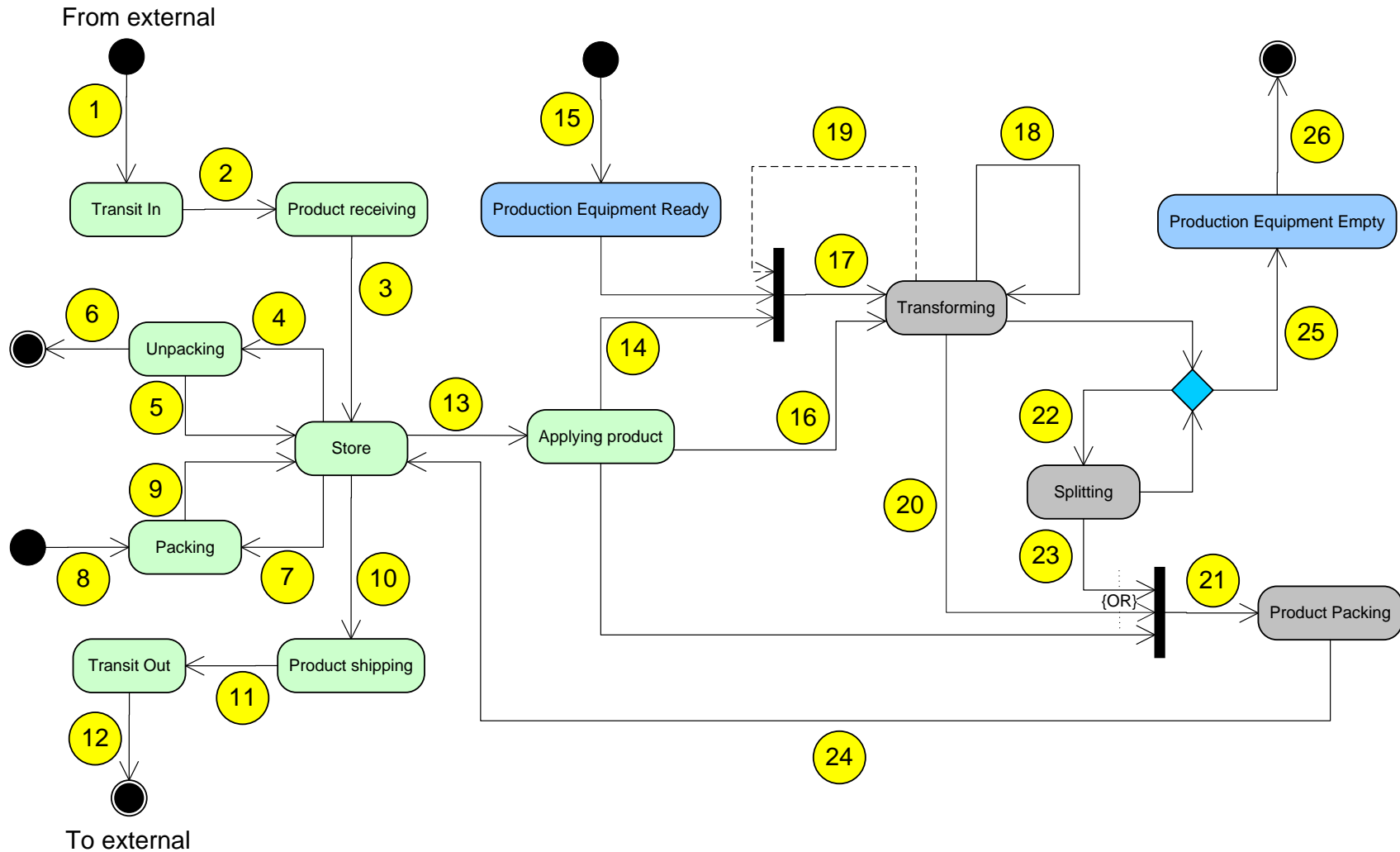


EPCIS Capture Interface



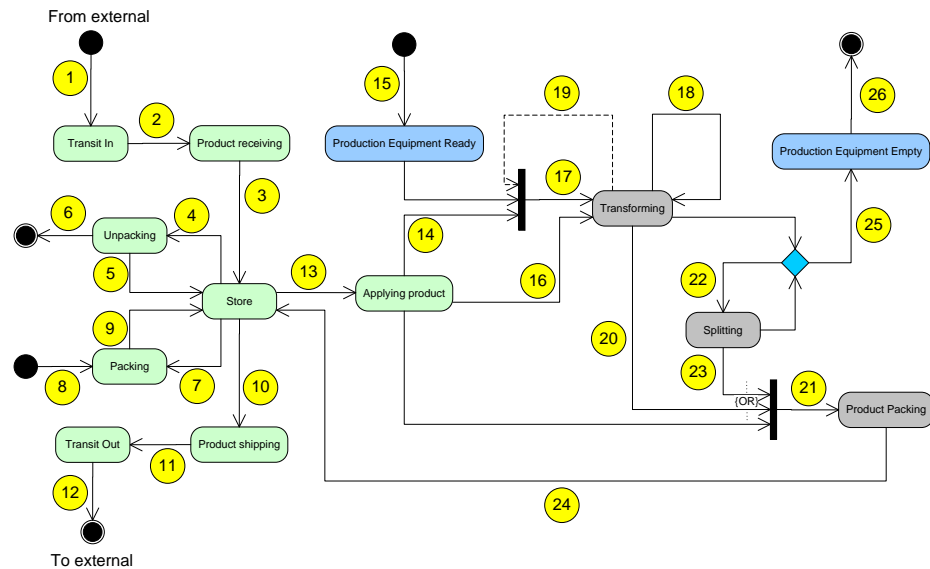
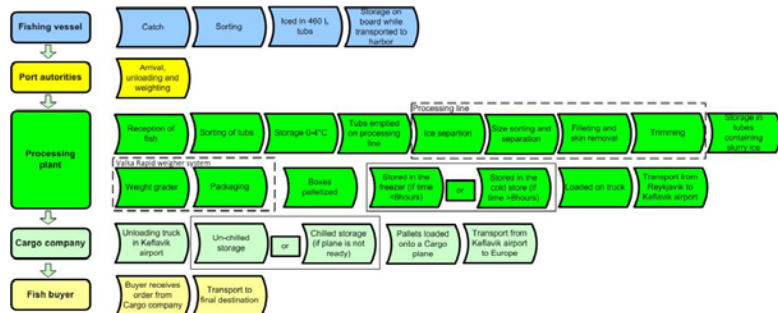
| Event Type | Transaction Event |
|--------------|-------------------|
| Event Fields | Timestamps |
| | Action |
| | ParentID |
| | EPCList |
| | bizStep |
| | bizLocation |
| | readPoint |
| | Disposition |
| | bizTransaction |

Generic traceability events in production and processing

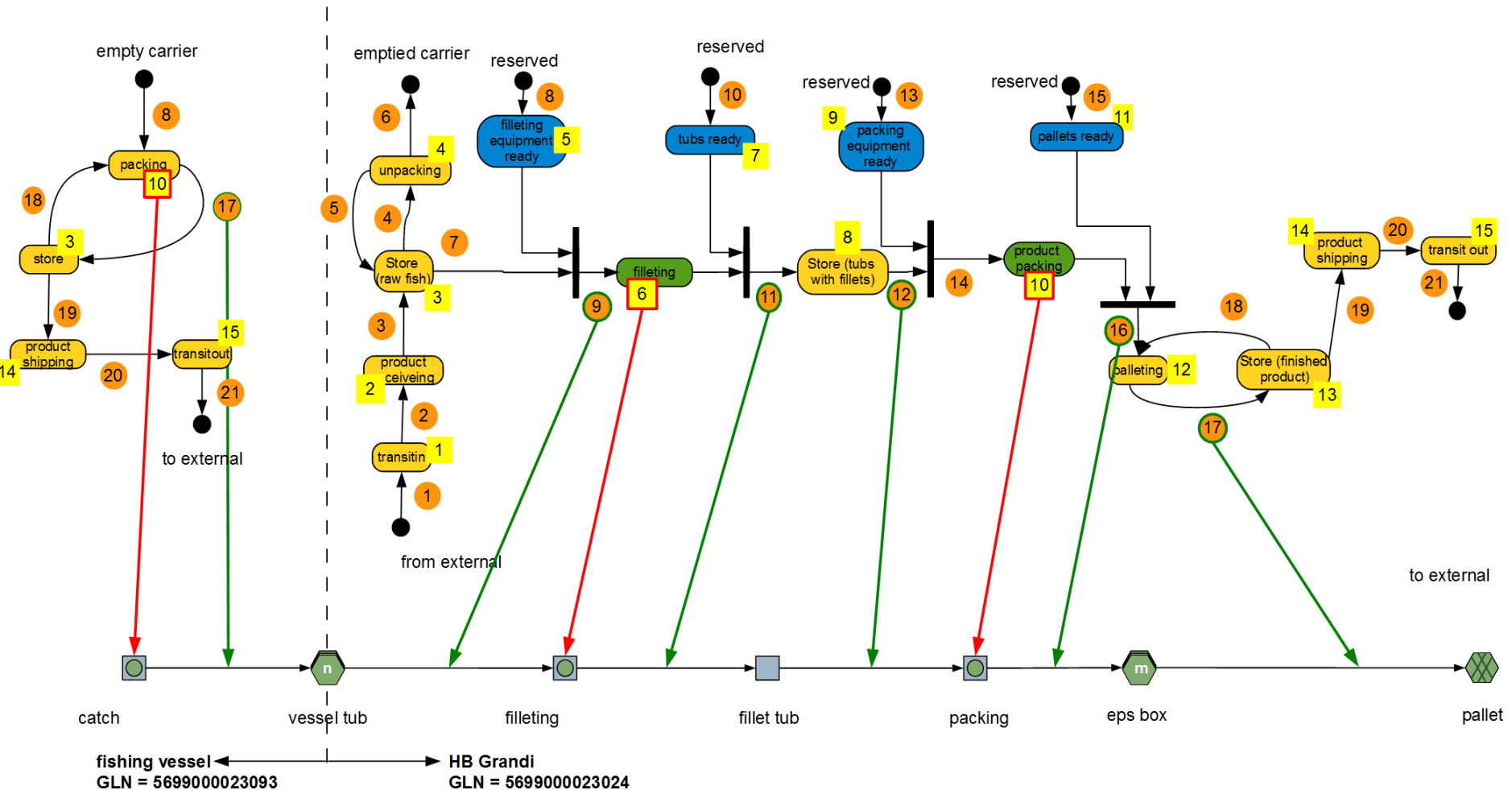


The application of the EPCIS standard for food traceability purposes was tested in this project. The approach used is based on identification of states and events in food production and mapping these events to the EPCIS standard.

Model traceability information using the EPCIS framework and UML statecharts



Relationship between the traceability model for HB Grandi redfish catching and processing, and the underlying eTrace event model

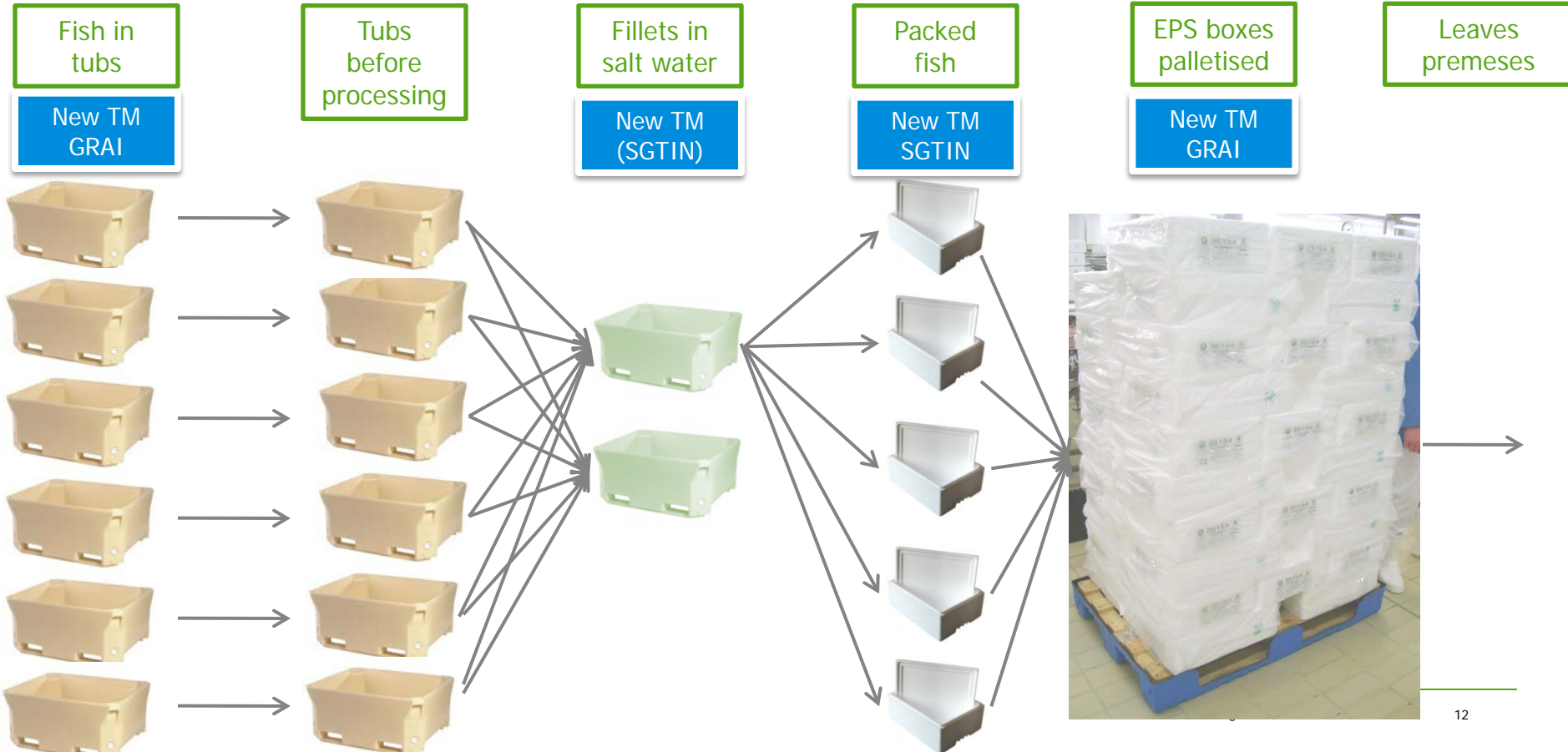


The process

GLN 5699000023.093



GLN 5699000023.024





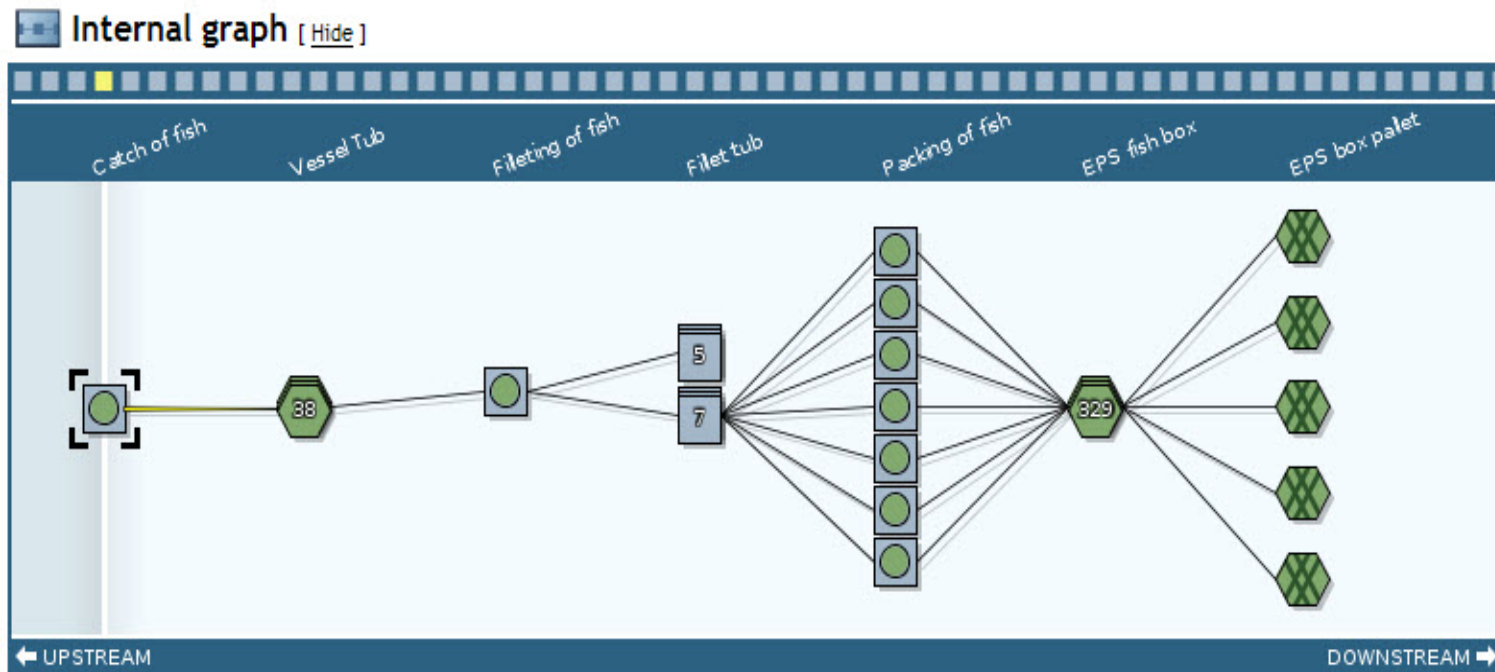






Results

Figure shows one fishing day which resulted in 38 vessel tubs of iced redfish, modeled as one catch to simplify internal traceability.



ec=te8rfid

This system and the EPCIS standard makes it possible to associate other relevant information with the tagged item or event in the process itself.

TraceTracker repository:

- **user-friendly for managers, and other stakeholders in this chain by providing a simple diagrams**
- **inventory overview**
- **software was able to connect events and thus identifiers together**

Readability of tags

- In the first stage of the pilot where 38 tubs were labelled with GRAI RFID, 4 tags did not work and were replaced.
- No such problems were detected with the SGTIN tags
- No tags lost its readability during the pilot

Hardware

- There were problems reading temperature sensors with Nordic hand scanners
- Sometimes the hand scanners had problems sending data wirelessly, due to software coding.



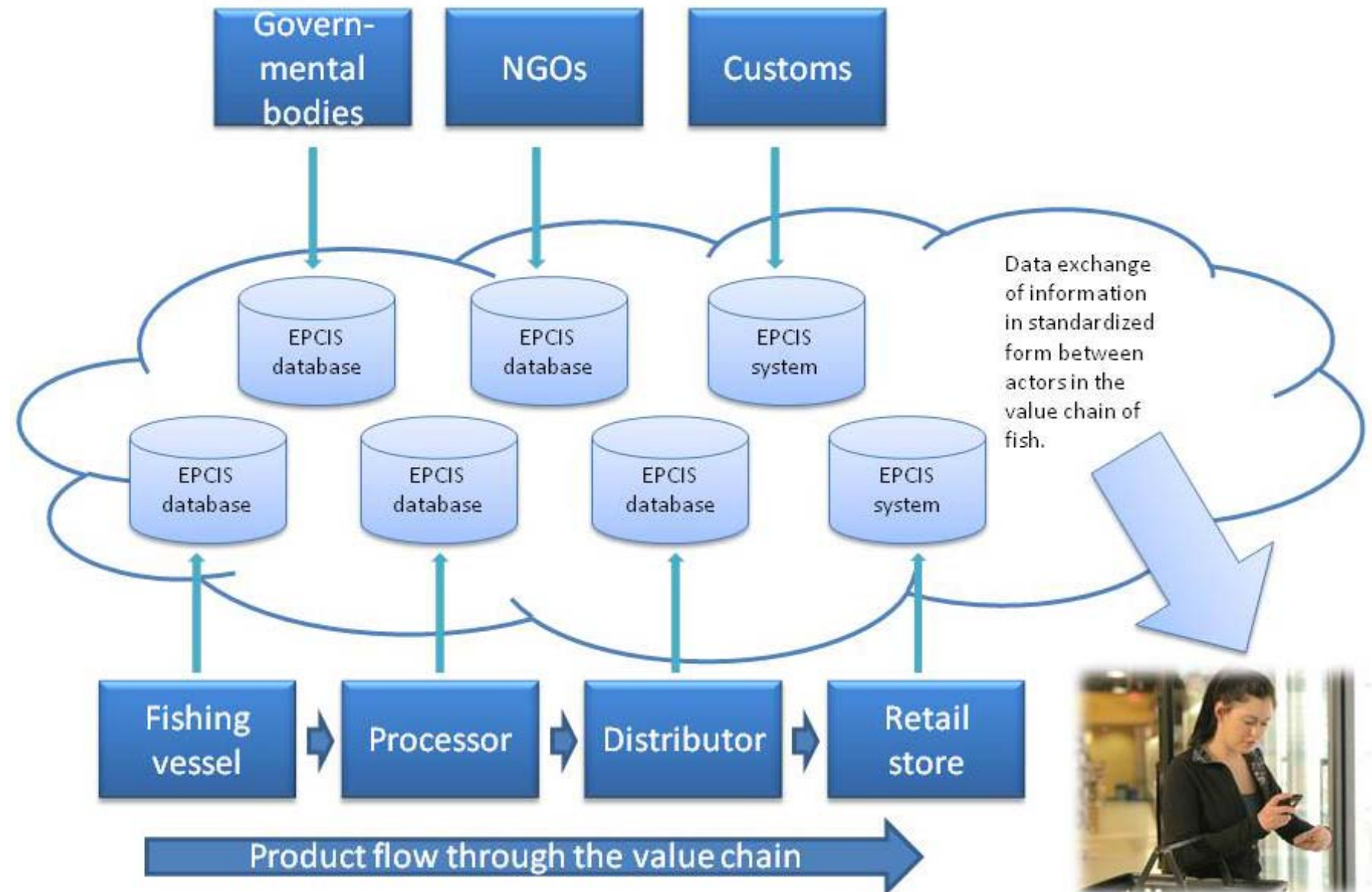
How soon is now...

HB Grandi saw potential:

- this RFID EPCIS traceability system enables finer granularity
- simpler catch certificates.
- increased information flow through the value chain
- gateway for customers to access products information
- opportunities for better processing control of products and even greater efficiency opens
- increased automation in the processing of fish

The future...

- Tubs with fixed RFID
- Automatic reading stations in processing plants
 - may provide a faster and more efficient way of information capture and exchange
 - reduce manpower needed





Ireland clamps down on mislabeled fish



By [Lindsey Partos](#), *SeafoodSource* contributing editor, reporting from Paris

31 March, 2011 – Actors in Ireland's seafood supply chain must track traceability, the country's food-safety agency warned on Wednesday after finding nearly one in five fish products labeled incorrectly.

"If consumers want to buy a piece of cod, it should be a piece of cod they are buying, and not some other fish," said Alan Reilly, chief executive at the Food Safety Authority of Ireland (FSAI).

In the first comprehensive labeling study of fish products on sale in Ireland, the FSAI analysis found 20 samples (out of 111) sold with a cod label in fact contained a totally different, and cheaper, species. Indeed, in total 21 samples (19 percent) were found to be mislabeled, 17 of which contained pollock or smelt.

"This activity can be viewed as food businesses increasing their own profit margins by misleading consumers," said Reilly, adding that businesses are failing to maintain appropriate traceability records.

And in a direct reaction to the survey findings, Reilly announced the introduction of an annual seafood-sampling and analysis program together with Ireland's Health Service Executive.

The FSAI analysis used genetic analysis to identify the species, dipping into samples from retail outlets, fish shops, hotels, pubs, restaurants and takeaways. The latter represented the largest segment of non-compliance, with 32 percent of takeaways found to be selling mislabeled seafood products.

In terms of enforcement action, the agency said non-compliant businesses were revisited by environmental health officers, issued verbal warnings and notified that additional unannounced checks are to be expected.

A European pilot project, [eTrace](#), is using radio frequency identification (RFID) tagging technology to track fish in the European market. As traceability tools move to center stage for the global seafood industry, the thrust of the project is to test the feasibility of using an electronic product code standard called EPCIS in the seafood supply chain.

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